



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/782,565 | 02/19/2004 | Andreas Weber | 15436.212.1 | 5154 |
| 22913 | 7590 | 12/17/2004 | EXAMINER | |
| WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111 | | | BELLO, AGUSTIN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2633 | |

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,565

Applicant(s)

WEBER, ANDREAS

Examiner

Agustin Bello

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/19/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first and second duplex connectors of claim 8, the plurality of elements of claim 13, the second optical module of claim 15, the plurality of elements of claim 18, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2633

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5, 7-10, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Bhagavatula (U.S. Patent No. 4,889,404).

Regarding claims 1 and 9, Bhagavatula teaches a bi-directional communications module configured for propagating transmission and reception of optical data along dual optical cables, the module comprising: a first transmitter (reference numeral 15-1 in Figure 1) configured for transmitting data on a first wavelength channel (e.g. λ_2 in Figure 1) onto a first optical fiber (reference numeral 14-1 in Figure 1); a first receiver (reference numeral 21-1 in Figure 1) configured for receiving data on a second wavelength channel (e.g. λ_1 in Figure 1) from the first optical fiber (reference numeral 14-1 in Figure 1); a second transmitter (reference numeral 20-2 in Figure 1) configured for transmitting data on the second wavelength channel (e.g. λ_1' in Figure 1, wherein $\lambda_1' = \lambda_1$ according to column 5 lines 38-48) on a second optical fiber (reference numeral 14-2 in Figure 1); and a second receiver (reference numeral 19-2 in Figure 1) configured for receiving data on the first wavelength channel (e.g. λ_2' in Figure 1, wherein $\lambda_2' = \lambda_2$ according to column 5 lines 38-48) from the second optical fiber (reference numeral 14-2 in Figure 1).

Regarding claim 2, Bhagavatula teaches that the first transmitter and the first receiver comprise a first bi-directional transceiver (reference numeral 15-1, 16-1, and 21-1 in Figure 1) and the second transmitter and the second receiver comprise a second bi-directional transceiver (reference numeral 17-2, 19-2, and 20-2 in Figure 1).

Art Unit: 2633

Regarding claims 3 and 10, Bhagavatula teaches that the first bi-directional transceiver comprises a first beam splitter (reference numeral 16-1 in Figure 1) for reflecting only one of the first or second wavelength channels while permitting passage therethrough of the non-reflected wavelength channel; and the second bi-directional transceiver further comprises a second beam splitter (reference numeral 17-2 in Figure 1) for reflecting only one of the first or second wavelength channels while permitting passage therethrough of the non-reflected wavelength channel.

Regarding claim 5, Bhagavatula teaches that the first receiver comprises a photodetector (reference numeral 21-1 in Figure 1).

Regarding claims 7 and 12, Bhagavatula teaches that the first wavelength channel (e.g. λ_2 in Figure 1) and the second wavelength channel (e.g. λ_1 in Figure 1) are of sufficiently different wavelengths to prevent the receivers from experiencing optical crosstalk due to internal reflection from the outgoing optical signals (inherent in that $\lambda_1 \neq \lambda_2$ in Figure 1).

Regarding claim 8, Bhagavatula teaches that first and second duplex connectors (inherent in the bi-directional nature of the system) that are configured to mate with connectors affixed to the first optical fiber and the second optical fiber.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2633

5. Claims 4, 6, 11, and 13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhagavatula.

Regarding claims 4, 11, 16, and 21, Bhagavatula differs from the claimed invention in that Bhagavatula fails to specifically teach that the module is compatible with small form factor pluggable (SFP) standards. However, the small form factor pluggable (SFP) standard is well known in the art. One skilled in the art would have been motivated to craft the module of Bhagavatula to be compatible with small form factor pluggable (SFP) standards in order to reduce the overall footprint of the module, thus conserving space. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to craft the module of Bhagavatula to be compatible with small form factor pluggable (SFP) standards.

Regarding claim 6, Bhagavatula teaches the use of a laser (reference numeral 15-1, 15-2 in Figure 1), but differs from the claimed invention in that Bhagavatula fails to specifically teach that the laser is selected from a group consisting of a distributed feedback laser and a Fabry-Perot laser. However, both of these lasers are very well known in the art and readily available. One skilled in the art would have been motivated to select the laser from the group claimed since these types of laser are readily available and relatively inexpensive. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to select the laser from a group consisting of a distributed feedback laser and a Fabry-Perot laser.

Regarding claim 13, Bhagavatula teaches a first bi-directional communications module, comprising, a first bi-directional transceiver, the first bi-directional transceiver comprising: a first transmitter (reference numeral 15-1 in Figure 1) configured for transmitting data along a first wavelength channel (e.g. λ_2 in Figure 1); and a first receiver (reference numeral 21-1 in

Art Unit: 2633

Figure 1) configured for receiving data along a second wavelength channel (e.g. λ_1 in Figure 1); and a second bi-directional transceiver, the second bi-directional transceiver comprising: a second transmitter (reference numeral 20-1 in Figure 1) configured for transmitting data along the second wavelength channel (e.g. λ_1 in Figure 1); a second receiver (reference numeral 19-1 in Figure 1) configured for receiving data along the first wavelength channel (e.g. λ_2 in Figure 1), and a second bi-directional communications module, comprising: a third bi-directional transceiver, the third bi-directional transceiver comprising: a third transmitter (reference numeral 15-2 in Figure 1) configured for transmitting data along a first wavelength channel (e.g. λ_2' in Figure 1); and a third receiver (reference numeral 21-2 in Figure 1) configured for receiving data along a second wavelength channel (e.g. λ_1' in Figure 1); and a fourth bi-directional transceiver, the fourth bi-directional transceiver comprising: a fourth transmitter (reference numeral 20-2 in Figure 1) configured for transmitting data along the second wavelength channel (e.g. λ_1' in Figure 1); a fourth receiver configured (reference numeral 19-2 in Figure 1) for receiving data along the first wavelength channel (e.g. λ_2' in Figure 1); and a first optical fiber (reference numeral 14-1 in Figure 1); and a second optical fiber (reference numeral 14-2 in Figure 1).

Bhagavatula differs from the claimed invention in that Bhagavatula fails to specifically teach that the first optical fiber is in optical communication with each of the first transceiver and the fourth transceiver and that the second optical fiber is in optical communication with each of the second transceiver and the third transceiver. However, one skilled in the art would clearly have recognized that it would have been possible to arrange the system of Bhagavatula in any of a variety of configurations including that claimed by the applicant. One skilled in the art would have been motivated to do so in order to meet design requirements or as a matter of choice.

Art Unit: 2633

Furthermore, it is clear that the various elements of Bhagavatula could have been arranged in any of a several different ways without departing from the spirit or scope of the invention.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to arrange the transceivers, their operating wavelengths, and the fibers interconnecting the transceivers in arrangement claimed.

Regarding claims 14 and 20, Bhagavatula teaches that the first bi-directional transceiver comprises a first beam splitter (reference numeral 16-1 in Figure 1) for reflecting only one of the first or second wavelength channels while permitting passage therethrough of the non-reflected wavelength channel; and the second bi-directional transceiver further comprises a second beam splitter (reference numeral 17-2 in Figure 1) for reflecting only one of the first or second wavelength channels while permitting passage therethrough of the non-reflected wavelength channel.

Regarding claims 15 and 18, Bhagavatula differs from the claimed invention in that Bhagavatula fails to specifically teach the wavelength configuration between the first and second modules. However, given that Bhagavatula teaches that the propagation wavelengths can be the same or different, it would have been obvious to one skilled in the art at the time the invention was made to design the system according to the wavelength configuration claimed. One skilled in the art would have been motivated to do in order to meet design requirements.

Regarding claims 17 and 22, Bhagavatula teaches that the first wavelength channel (e.g. λ_2 in Figure 1) and the second wavelength channel (e.g. λ_1 in Figure 1) are of sufficiently different wavelengths to prevent the receivers from experiencing optical crosstalk due to internal reflection from the outgoing optical signals (inherent in that $\lambda_1 \neq \lambda_2$ in Figure 1).

Art Unit: 2633

Regarding claim 19, Bhagavatula teaches that the first transmitter and the first receiver comprise a first bi-directional transceiver (reference numeral 15-1, 16-1, and 21-1 in Figure 1) and the second transmitter and the second receiver comprise a second bi-directional transceiver (reference numeral 17-2, 19-2, and 20-2 in Figure 1).

Conclusion

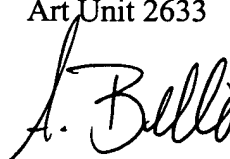
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Grafton, Hoag, Goossen disclose relevant art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Agustin Bello
Examiner
Art Unit 2633



AB